EUPHORBIA GENTRYI, A NEW SPECIES OF *EUPHORBIA* SUBGENUS *AGALOMA* FROM NORTHWESTERN MEXICO

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ABSTRACT

Euphorbia gentryi, a new species from northwestern Mexico, is described and illustrated. The species is treated in subgenus *Agaloma* and is distinguished from its relatives in northwestern Mexico by the combination of its glabrous herbage; large, white appendages; and membranaceous, mostly linear leaves with short petioles. *Euphorbia hindsiana* is recognized as distinct from *E. californica,* and a key to *E. gentryi, E. misera, E. californica,* and *E. hindsiana* is presented.

RESUMEN

Se describe e ilustra *Euphorbia gentryi* como especie nueva del noroeste de México. Pertenece al subgénero *Agaloma* y se distingue por la combinación de su herbaje glabro; apéndices blancos y grandes; y hojas membranáceas con pecíolos cortos y con láminas generalmente lineares. Se reconoce *E. hindsiana* como especie distinta de *E. californica* y se presenta una clave para *E. gentryi, E. misera, E. californica,* y *E. hindsiana.*

In 1940, Howard Scott Gentry collected an unusual *Euphorbia* from basaltic slopes in northern Sinaloa, Mexico. Similar plants have since been collected in other localities in northwestern Mexico. Our studies over several years have convinced us that they represent a previously undescribed species. This species is described below, and its relationships to three other species are discussed.

Euphorbia gentryi V. W. Steinmann & T. F. Daniel, sp. nov. (Fig. 1).—TYPE: MEXICO, Sonora, Mesa Masiaca, 6.5 km WNW of San José de Masiaca, ca. 26°46′N, 109°17′W, Sinaloan Thornscrub on steep basaltic slopes, ca. 200 m, 22 Nov 1993, *V. W. Steinmann et al. 93-357* (holotype, CAS!; isotypes, ARIZ!, MEXU!, TEX!).

Differt a *E. californica* Benth. foliis angustioribus apice acutis vel acuminatis, petiolis quam laminis plerumque brevioribus, appendicibus albis 1.5–4.5 mm longis.

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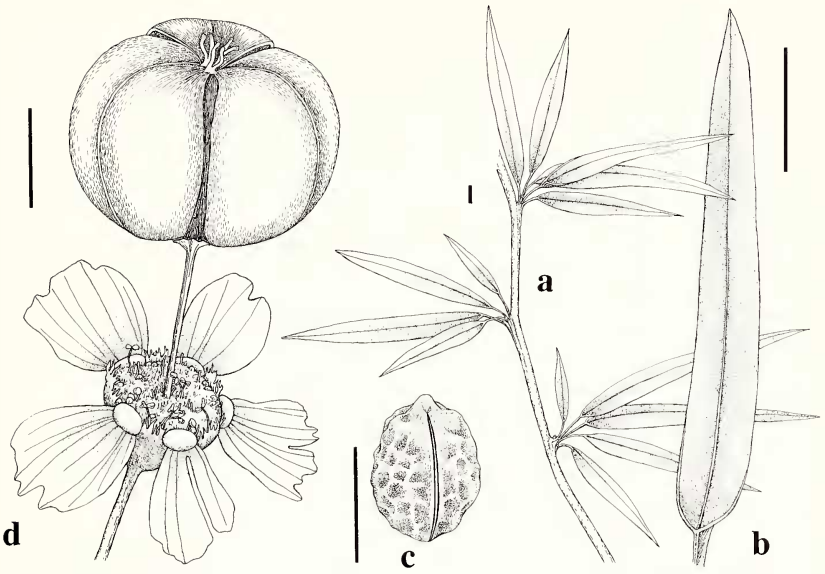

FIG. 1. *Euphorbia gentryi.* a, portion of vegetative branch (*Daniel et al. 2538*). b, leaf (*Daniel et al. 2538*). c, seed (*Wiggins 13144*). d, cyathium with capsule (*Steinmann et al. 93-357*). Scale bars = 2.5 mm.

Basally much-branched shrub to 4 m tall and to 10 cm in diameter at base; bark gray on older stems, dark and somewhat reddish on younger stems; twigs irregularly striate-ridged, glabrous, the young growth often covered with a thin waxy layer. Leaves (sometimes nearly or completely absent) alternate and often clustered on short lateral shoots, petiolate, stipulate; petioles 2–25 mm long, mostly shorter than blades, 0.2–0.4 mm in diameter, glabrous; stipules glandlike, dark, triangular, 0.2–0.6 mm long; blades linear to narrowly elliptic (to obovate), 15–42 mm long, (1.5) 3–12 (–18) mm wide, mostly 4–12 times longer than wide, glabrous, acute to tapered at base and apex, symmetric at base, margin at base of blade continuous across adaxial side of petiole. Cyathia borne in axillary (or terminal) pedunculate dichasia (sometimes clustered near shoot apex); bracts subfoliose (smaller than leaves), caducous; cyathia 1–12 (or more) per dichasium, pedunculate (peduncles 3–7 mm long), open-campanulate, 5–9 mm in diameter (including appendages), 1.7–3.5 mm in diameter (excluding appendages); lobes of involucres 0.5–1 mm long, apically erose to pectinate; glands 5, yellowish, transversely elongate-elliptic, 0.8–1.5 mm long (long axis); appendages of glands 5, conspicuous, white, ovate to circular to obovate, (1.1–) 1.5–4.5 mm long, 1.4–2.7 mm wide, entire, emarginate, shallowly lobed, or apically erose. Bracteoles among staminate flowers nu-

merous, densely pubescent. Staminate flowers ca. 25–40. Pistillate flowers subsessile to pedicellate, pedicels to 3.5 mm long, mostly erect in fruit; ovaries glabrous; styles divided from ½ their length to nearly to base, yellowish, 0.8–1.2 mm long. Capsules green or somewhat reddish, 3-lobed, depressed globose, 3–5 mm long, 3.5–6 mm in diameter, glabrous. Seeds ecarunculate, whitish gray to brown, ovoid to subglobose, 2.2–3.5 mm long, 1.8–2.7 mm in diameter, foveolate.

PARATYPES: MEXICO, Sinaloa, hill near Hwy. 15 ca. 40 km N of Los Mochis and 1.6 km S of Los Natochis, *Daniel et al. 2538* (ASU, DAV); Cerro Tecomate, W of Pericos, *Gentry 5734* (ARIZ, DS, GH, NY, RSA); Bahía Topolobampo in Sierra Navachiste, *Gentry 11430* (ARIZ); Cerro de Navachiste about Bahía Topolobampo, *Gentry 14371* (ARIZ); Cerros del Fuerte, 18–24 mi N of Los Mochis, *Gentry 14297* (ARIZ, US); ca. 2 km NW of Topolobampo, 25°58′N, 109°02′W, *Moran 7580* (DAV, SD); ca. 2 km NW of Topolobampo, 25°58′N, 109°05′W, *Moran 7586* (ARIZ, DAV, SD); hills 12.8 km S of Pericos, *Wiggins 13144* (DS, SD). Sonora, ca. 10 mi S of Cd. Obregón, *Gentry 14281* (ARIZ); near Hermosillo (Alamos), 29°05′N, 110°57′W, *Rauh 25080* (SD); near summit of Cerro Cabaña, 5 mi E of Hwy. 15 at point 8 mi S of Cd. Obregón, 27°28′N, 109°46′W, *Sanders et al. 1910* (UCR, DAV); summit of Cerro Prieto, vicinity of microwave station, 15 km E of Navojoa, ca. 27°15′N, 109°17′W, *Sanders et al. 9276* (UCR); Mpio. Navojoa, summit of Cerro Masiaca, vicinity of microwave station, 2.5 km NE of Hwy. 15, 26°46.4′N, 109°17.9′W, *Sanders et al. 12768* (ARIZ, UCR); 1.2 mi E of Mex. 15 at 11 mi S of Bacabachi, ca. 20 mi N of Sinaloa, *Soule and Krizman s.n.* (ARIZ); Cerro Prieto, ca. 14 km E of Navojoa, 27°05′N, 109°17′W, *Steinmann et al. 93-113* (ARIZ, ASU, F, GH, MEXU, MO, NY); Cerro Prieto, ca. 9 mi E of Navojoa on Alamos Road, 27°05′N, 109°17′W, *Van Devender et al. 92-167* (ARIZ).

Phenology. Flowering and fruiting: August–March; probably reproductive any time of the year that sufficient moisture is available. Likely drought deciduous.

Distribution and habitat. Northwestern Mexico (Sinaloa and Sonora); plants occur on, and are apparently restricted to, basaltic slopes of hills in thornscrub at elevations from 90 to 485 meters. On Cerro Prieto and Mesa Masiaca in southern Sonora, the plants are usually encountered in boulder fields.

Local name. "Vara leche" (*Gentry 5734*). This same name also appears on *Gentry 5712,* a specimen of *E. californica.*

The epithet of this species honors the late Howard Scott Gentry (1903–1993), who apparently was the first to collect it. Gentry's

extensive collections from Sonora and Sinaloa have been the source of numerous undescribed species.

Euphorbia gentryi belongs to *Euphorbia* subgenus *Agaloma* (Raf.) House where its affinities lie with *E. californica* Benth., *E. misera* Benth., and *E. hindsiana* Benth. All four of these species share a shrubby habit with divaricate branching, young growth that is often covered with a thin waxy coating, short lateral shoots bearing alternate leaves, and foveolate seeds. They all occur in desertscrub and thornscrub of northwestern Mexico. *Euphorbia misera* also enters into southern California.

Among this group, *Euphorbia hindsiana,* known only from the Cape Region in Baja California Sur, frequently has been treated as *E. californica* var. *hindsiana* (Benth.) Wiggins (e.g., Wiggins 1955, 1964, 1980; Huft 1985). *Euphorbia californica sensu stricto* (i.e., var. *californica*) is known from Sonora, Sinaloa, Zacatecas, Baja California Sur, and the Islas Revillagigedo. The coriaceous (vs. membranaceous), yellow-green (vs. green) leaves with stout petioles usually shorter (vs. slender and usually longer) than the blades, and larger, white (vs. green to yellowish green) appendages of *E. hindsiana* seem sufficient characteristics to warrant its recognition as a species. It is not geographically separated from *E. californica* nor do there appear to be morphological intermediates between the two taxa.

The following key distinguishes *Euphorbia gentryi* from its relatives in northwestern Mexico:

1. Herbage, cyathia, ovaries, and capsules pubescent; base of leaf blade not continuous over adaxial side of petiole ..... *E. misera.*
1′ Herbage, cyathia, ovaries, and capsules glabrous; base of leaf blade usually continuous over adaxial side of petiole.
   2. Petioles often equaling or longer than blades; glandular appendages green to yellowish green, ≤ 1 mm long ..... *E. californica.*
   2′ Petioles usually shorter than blades; glandular appendages usually white, >1 mm long.
      3. Leaf blades thick, coriaceous, pale yellowish green, subcircular to obovate to obcordate, rounded to truncate to emarginate at apex; Baja California Sur ..... *E. hindsiana.*
      3′ Leaf blades thin, membranaceous, dark green, linear to narrowly elliptic (to obovate), acute to tapered at apex; Sonora and Sinaloa .. *E. gentryi.*

Several specimens (i.e., *Gentry 11430, Gentry 14371,* and *Moran 7580*) from the vicinity of Bahía Topolobampo in northern Sinaloa, are vegetatively somewhat intermediate between typical *E. gentryi* and typical *E. californica.* The leaves are broad and the petioles vary from shorter to longer than the elliptic to obovate blades. However, the large glandular appendages are typical of *E. gentryi* to which these unusual specimens are tentatively referred. It remains to be determined whether these specimens represent a hybrid population,

an unusual geographic form of *E. gentryi,* or merely variation within that species. Other collections from near Topolobampo represent typical *E. gentryi* (i.e., *Moran 7586*) and typical *E. californica* (i.e., *Hastings and Turner 64-105,* DS). Another unusual collection (Sinaloa: 7.5 mi SE of Guamuchil, *Webster 19821,* DAV) has very small (4–12 mm long and 2–7 mm wide), elliptic to obovate leaves with the petioles shorter than the blades. Its disposition remains uncertain and it is not included in the description above.

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